

CONSIDERED: /J.G./

PATENT
Attorney Docket No. 03626.0034-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
Bruce NOVICH et al.)	Group Art Unit: 1794
)	
Application No.: 09/620,523)	Examiner: Jill M. Gray
)	
Filed: July 20, 2000)	
)	
For: IMPREGNATING GLASS FIBER)	Confirmation No.: 2899
STRANDS AND PRODUCTS)	
INCLUDING THE SAME)	<u>VIA EFS WEB</u>

Attention: Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Pursuant to 37 C.F.R. § 41.41, Appellants present this Reply Brief in response to the Examiner's Answer dated November 25, 2009. This Reply Brief is timely filed within two-months of the mailing date of the Examiner's Answer, January 25, 2010.

I. STATUS OF CLAIMS AND REJECTIONS

Claims 1, 4, 6-40 and 43-58 are pending. Claims 2, 3, 5, 41 and 42 are canceled. Claims 4, 6-11, 21-39 and 48-58 are withdrawn from consideration as being drawn to a non-elected invention. Claims 1, 12-20, 40 and 43-47 stand rejected and are appealed. No claim has been allowed.

II. RESPONSE TO ARGUMENTS IN EXAMINER'S ANSWER

A. Claims 1, 12-20, 40 and 43-47 stand rejected under 35 U.S.C. § 103(a) over JP Patent Publication 4-307787 to Iketani ("Iketani"), JP Patent Publication 1-249333 to Nagamine et al. ("Nagamine"), and WO 93/24314 to Papageorge et al. ("Papageorge").

Claims 1, 12-20, 40 and 43-47 stand rejected under 35 U.S.C. § 103(a) over JP Patent Publication 4-307787 to Iketani ("Iketani"), JP Patent Publication 1-249333 to Nagamine et al. ("Nagamine"), and WO 93/24314 to Papageorge et al. ("Papageorge"). Appellants maintain their position that the Examiner has failed to establish that these claims are prima facie obvious over Iketani, Nagamine, and Papageorge for the reasons of record and for the additional reasons discussed below.

1. A Resin Compatible Coating which is Compatible with the Matrix Material

As previously pointed out, Appellants' specification teaches that "resin compatible" means that the coating composition that is applied to the fibers is compatible with the matrix material into which the fibers will be incorporated, such that the coating composition: a) does not require removal prior to incorporation in the matrix; b) facilitates good wet out; or c) imparts desirable physical properties and hydrolytic stability. See Appellants' specification at pp. 11-12.

The Examiner asserts that “Iketani discloses a glass cloth impregnated with a resin varnish containing a filler, and then further impregnating with a varnish containing no filler.” Examiner’s Answer at p. 9. The Examiner takes the position that the varnish containing no filler is a matrix material. *Id.* The Examiner asserts that “[t]he impregnating varnish containing filler is not removed from the glass cloth prior to impregnating with the varnish containing no filler (matrix material). This teaching results in a coating composition that achieves at least one of the defining properties of a ‘resin compatible coating’ as set forth on page 12 of Appellants’ specification, namely, ‘does not require removal prior to incorporation into the matrix material.’” *Id.* Appellants respectfully disagree.

Iketani discloses a method for manufacturing a printed circuit substrate, comprising impregnating a glass fiber substrate with a varnish containing a filler, and then impregnating the substrate with a varnish containing no filler. Iketani at paragraph [0002]. As materials suitable for use as the filler material, Iketani discloses inorganic fillers including “short glass fibers, glass beads, glass balloons, aluminum hydroxide, aluminum oxide, clay, talc, wollastonite and the like.” *Id.* at [0006]. However, as admitted by the Examiner, Iketani does not disclose a laminate comprising at least one non-degreased fabric as claimed. Examiner’s Answer at p. 4.

Moreover, all of Iketani’s disclosed fillers are outside the scope of the plurality of particles recited in independent claims 1 and 40. Claim 1 recites:

1. A reinforced laminate adapted for an electronic support,
the laminate comprising:

(a) a matrix material; and

(b) at least one non-degreased fabric comprising at least one strand comprising a plurality of fibers, wherein at least a portion of the fabric has a resin compatible coating which is compatible with the matrix material in the reinforced laminate adapted for the electronic support, and the resin compatible coating comprises a plurality of particles,

wherein said particles are formed from materials selected from: non-polymeric inorganic materials selected from graphite, metals, carbides, nitrides, borides, sulfides, carbonates, sulfates, and mixtures thereof; polymeric inorganic materials; polymeric organic materials; non-polymeric organic materials; composite materials; and mixtures of any of the foregoing.

And claim 40 recites:

40. An electronic support comprising

(a) at least one non-degreased fabric comprising at least one strand comprising a plurality of fibers, wherein at least a portion of the fabric has a resin compatible coating which is compatible with a matrix material; and

(b) at least one matrix material on at least a portion of the at least one fabric;

wherein the resin compatible coating comprises a plurality of particles, wherein said particles are formed from materials selected from: non-polymeric inorganic materials selected from graphite, metals, carbides, nitrides, borides, sulfides, carbonates, sulfates, and mixtures thereof; polymeric inorganic materials; polymeric organic materials; non-polymeric organic materials; composite materials; and mixtures of any of the foregoing.

In contrast to these claims, all of Iketani's disclosed fillers are either a silicate (glass fibers, glass beads, glass balloons; clays, talc¹, wollastonite²), hydroxide (aluminum hydroxide, talc), or oxide (aluminum oxide, glass). Thus, these fillers are not encompassed by the plurality of particles recited in present independent claims 1

¹ Talc is a magnesium silicate hydroxide.

² Wollastonite is a calcium silicate.

and 40. The Examiner understands this fact by acknowledging that Iketani is silent as to the specific particles as claimed. Examiner's Answer at p. 4. For this reason, the varnish containing filler material in Iketani cannot be a "resin compatible coating" as defined in independent claims 1 and 40.

Despite the Examiner's assertion, there is also no teaching or suggestion in Iketani that its varnish containing filler does not require removal prior to incorporation into the matrix material, would facilitate good wet-out and wet-through of the matrix material during conventional processing, or would impart desirable physical properties and hydrolytic stability. At least one of these requirements would need to be met in order for the varnish of Iketani to fall within the scope of the "resin compatible coating" recited in independent claims 1 and 40. See Appellants' specification at pp. 11-12.

Finally, while Iketani discusses the amount of filler used, *e.g.*, paragraph [0006], and the preferred length and diameter of the filler, *e.g.*, paragraph [0008], Iketani is silent with respect to the average particle size as claimed in claims 15 and 44.

The Examiner takes the position that the teachings of Nagamine and Papageorge in combination with Iketani would have rendered obvious the invention as claimed in present claims 1 and 40. As discussed above, Iketani fails to teach or suggest at least one non-degreased fabric wherein at least a portion of the fabric has a resin compatible coating as claimed. Iketani also fails to teach or suggest particles having an average particle size as in claims 15 and 44.

Nagamine and Papageorge do nothing to cure these deficiencies of Iketani. Nagamine discloses non-greased glass fiber cloths for use in the base plate of a printed circuit board laminate, but is silent regarding whether its' resin coating is compatible

with a matrix material. Papageorge discloses a thermally conductive printed circuit board comprising a glass fabric saturated with a resin containing thermally conductive particles dispersed throughout, but is also silent with respect to a resin compatible coating which is compatible with a matrix material. Thus, when taken as a whole Iketani, Nagamine, and Papageorge would not have rendered obvious independent claims 1 and 40 or the claims that depend therefrom.

2. The Resin Compatible Coating Comprises a Plurality of Particles

The Examiner admits that Papageorge does not teach or suggest a resin compatible coating of the type defined by Appellants claims 1 and 40. Examiner's Answer at p. 13. Nevertheless, the Examiner takes the position that:

the collective teachings of the prior art clearly suggest a reinforced laminate or electronic support comprising a matrix material and at least one fabric, whereby at least a portion of the fabric has a resin compatible coating thereon, and where the resin compatible coating comprises a plurality of particles (Iketani) and wherein the particles can be selected from graphite, carbide or nitride (Papageorge) to produce laminates having high thermal conductivity, low coefficient of thermal expansion and sufficient hardness.

Office Action at p. 13. Appellants respectfully disagree.

As discussed above, Iketani fails to teach or suggest a laminate comprising at least one non-degreased fabric as recited in independent claims 1 and 40. Moreover, Iketani fails to teach or suggest a resin compatible coating which is compatible with the matrix material as recited in those claims. While Papageorge may disclose a resin containing thermally conductive particles dispersed throughout, Papageorge does not teach or suggest a resin compatible coating comprising a plurality of particles.

Accordingly, Appellants maintain that even if one of ordinary skill in the art would combine the references as suggested by the Examiner, *e.g.*, modify the prepreg of Iketani by using a nitride, carbide or graphite as the filler material, as taught by Papageorge, the skilled artisan would not arrive at the claimed invention. Thus, when taken as a whole Iketani, Nagamine, and Papageorge would not have rendered obvious independent claims 1 and 40 or the claims that depend therefrom.

B. Claims 1, 12, 13, 16-20, 40 and 45-47 rejection under 35 U.S.C. § 103(a) over Papageorge in view of Nagamine in withdrawn.

The Examiner has withdrawn the rejection of claims 1, 12, 13, 16-20, 40 and 45-47 under 35 U.S.C. § 103(a) over Papageorge in view of Nagamine. See Examiner's Answer at p. 2 and 14. Appellants acknowledge and appreciate that this rejection was withdrawn by the Examiner.

III. CONCLUSION

For the reasons of record and the additional reasons given above, pending claims 1, 4, 6-40 and 43-58 are allowable. Appellants therefore respectfully request that the Board reverse the Examiner's rejection.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Reply Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: January 25, 2010

By: 

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